THE CORNELL READING COURSE FOR THE HOME

STATE EXTENSION SERVICE IN HOME ECONOMICS
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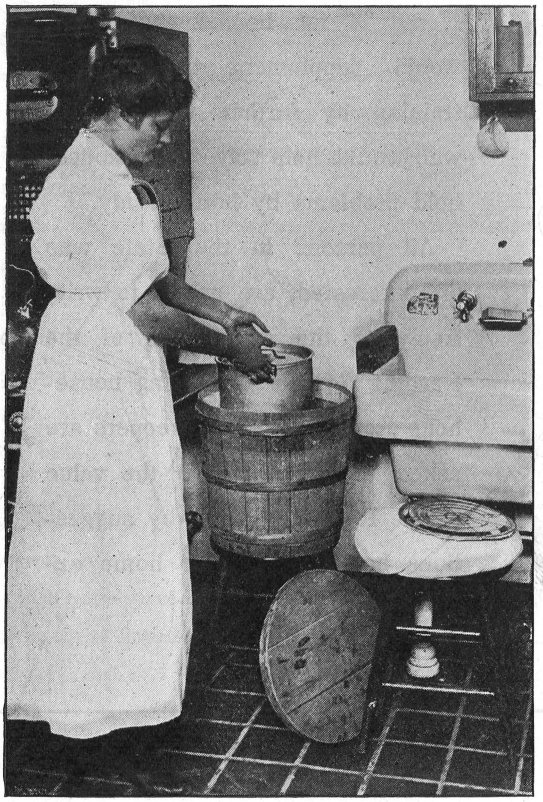
ALBERT R. MANN, DIRECTOR OF EXTENSION SERVICE

AUGUST, 1920 FOOD SERIES LESSON 135

FIRELESS AND STEAM-PRESSURE COOKERS



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THE CORNELL READING COURSE FOR THE HOME

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The Reading Course for the Home is for housekeepers who would supplement their school training by further reading and who would help solve their household problems by home study.

All persons in the State who are interested, are asked to write freely to the supervisors of the Reading Course concerning household problems. Housekeepers are asked to contribute to the value of the Reading Course by suggestions based upon their home experience.

CONTENTS

FIRELESS AND STEAM-PRESSURE COOKERS

The fireless and the steam-pressure cookers rank highest in value among the comparatively new devices for food preparation and preservation. Each has its own particular usefulness, but both conserve time, fuel, and strength, and thus help toward enabling the housewife to take some part in activities outside the kitchen.

Fireless cookers have been widely used for several years; steam-pressure cookers have won their way into many kitchens following the increase in the home preservation of food. An effort is now being made to bring both these devices into year-round, every-day usefulness and so increase their value to the housewife who already owns them or to the one who contemplates buying them.

The discussion of each device is taken up separately in order to avoid confusion.

THE FIRELESS COOKER

Within the last ten or fifteen years so much ingenuity has been exercised in perfecting the construction of fireless cookers, that there is no longer any question as to their worth.

REASONS FOR USING A FIRELESS COOKER

The fireless cooker not only saves time and fuel but also gives a better flavor to many products, and may make them more easily digested than would be possible by other types of cooking. In certain households where no outside help is employed, either a homemade or a commercial fireless cooker may become an almost indispensable piece of equipment.

Economy of fuel

Under present conditions the use of the fireless cooker is likely to become more general as a means of saving fuel. There are, however, conditions under which the use of the fireless cooker may not save fuel, hence a knowledge of when to use the cooker is necessary.

If a coal fire must be built in order to accomplish the initial heating of the food, and if this fire without replenishment of fuel would complete the cooking process, there would obviously be no saving in fuel effected by the use of the fireless cooker. However, there might be a saving in time and labor, as discussed further on.

Altho a slow, even heat may be maintained with kerosene, gas, or electric, stoves at a comparatively low cost, for most processes the amount of heat needed to bring the food and the radiator to the required temperature

before they are placed in the fireless cooker, is generally much less than the amount needed to cook the food on the stove.

The longer the cooking process is to be continued, the greater is the saving of fuel by supplementing a kerosene, gas, or electric, stove with the fireless cooker. It is possible, in fact, to save as much as thirty or more cubic feet of gas by the use of a fireless cooker in cooking such foods as cereals, beans, tough cuts of meat, or steamed puddings which require about three hours of cooking on the ordinary stove.

Economy of time and labor

For many persons the present high cost of living necessitates obtaining the most nutriment at the lowest cost. The nutritious foods at low cost, such as cereals, legumes, and tough cuts of meat, are those that require long, slow cooking to be made most palatable and of greatest use to the body. The high cost of fuel often makes these foods as unavailable as are the more expensive foods. Under such conditions the fireless cooker is almost a necessity if the family is to be properly nourished.

If fuel is being burned, there is always more or less uneasiness about leaving the house or the room in which food is being cooked. The amount of heat may vary or the food may be forgotten, with the result that the food may stick to the bottom of the utensil and burn. This gives a poor product and makes dishwashing a difficult task. The fireless cooker makes it possible to leave the food without worrying about the results. Thus, other occupations may be carried on while the food is cooking. In households where it is necessary for the woman to be away from the home all day, the fireless cooker helps to solve many problems of meal preparation. However, as stated further on, there is a certain point at which the cooked product is at its best and should be removed from the cooker.

The fireless cooker is found to be a time-saver when the various members of the household have their meals at different hours because food may be kept hot in it until each member is ready to be served.

With the limited cooking surface of an oil or gas stove, it is often difficult to have all the dishes for the meal cooked and ready to serve at the same time. In this case a fireless cooker may be used for keeping some of the food hot while the remainder of the meal is cooking.

The fireless cooker may prove the most satisfactory kind of "hired help" for the woman on the farm whose work often includes helping in the fields and about the farm buildings as well as preparing meals and performing other household tasks.

The fact that the cooking process need not be interrupted during transportation has led to the use of the fireless cooker by armies on the march;

at the end of the journey the meal is ready to be served. It is often so used by camping and picnic parties. When the men of the farm are to be absent all day in fields at some distance from the house, the fireless cooker may be loaded in the farm wagon and taken along in order that a hot meal may be enjoyed at the noon hour.

In the preparation of the hot lunch in rural schools the fireless cooker, which may be made by the boys of the school, has proved its usefulness. The cooking of the hot dish may be started before school or at the morning recess and requires no attention during study hours.

PRINCIPLES OF FIRELESS COOKING

Food to be cooked in a fireless cooker is first thoroly heated; it is then placed in the cooker either with or without a heated stone or radiator underneath, and the stored heat is locked up and utilized for cooking instead of being allowed to escape.

The principle underlying fireless cooking is the maintenance, for a certain period of time, of a fairly constant temperature, high or low, by surrounding the compartment in which the food is placed with material which tends to prevent the passage of heat. Materials which may be used for this purpose are called insulators.

Use of insulating substances

Certain substances are better conductors of heat than are others. Metals are good conductors of heat, while non-metals are poor conductors of heat. The metal container in which food is placed on the stove conducts the heat from the fire to the food. When the food is sufficiently heated it is quickly transferred in the container, from the stove to the food compartment in the fireless cooker. This compartment is surrounded by insulating, or non-heat-conducting, substances which tend to prevent the heat escaping from the food and to keep it at a fairly constant temperature for some time.

The better the insulating substance and the construction of the fireless cooker, the greater will be the amount of heat retained and the longer will be the period of time for which it may be held.

Cotton, wool, felt, sawdust, cork, mineral wool, silk, flannel, paper, wood, cotton cloth, and asbestos are the best insulating substances.

Heat passes thru air with the greatest difficulty but it may be carried from a heated substance by waves or currents of air. Air, then, is best used as an insulator when it fills the space between small particles of substances of low heat-transferring power. The particles of materials such as excelsior, hay, newspapers, sawdust, cork, and asbestos prevent the air waves

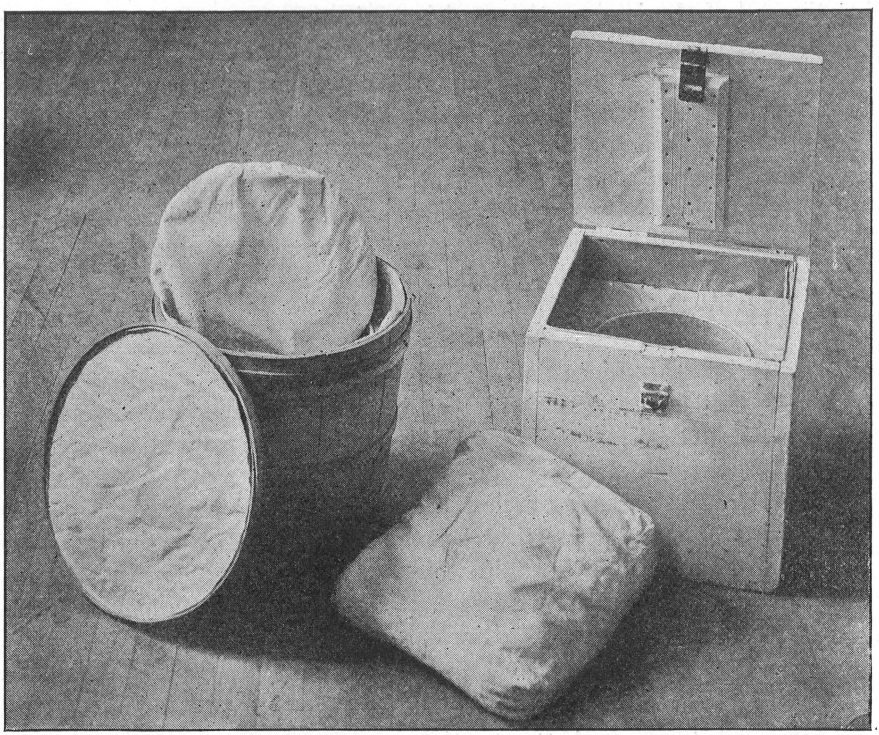


FIG. 25. TWO TYPES OF HOMEMADE FIRELESS COOKERS

or currents from carrying the heat away from the heated material, and are, therefore, most commonly used as insulating substances in fireless cookers.

A complete vacuum is the most effective insulator. It is used in thermos bottles and in certain fireless cookers.

Application of the principle of fireless cooking

Primitive people have made use of leaves and earth to prevent the escape of heat from food being cooked by means of hot stones or hot ashes. Campers, who necessarily employ the more primitive ways of cooking can testify to the long time that heat can be retained by covering hot ashes with earth.

The bean hole of lumber camps continues the cooking of parboiled beans for twelve or fourteen hours by the heat stored up in the food, the bean pot, and the stones, and retained by a covering of earth.

Feathers have been used as an insulating substance by the peasant folk of certain countries; they have followed the practice of placing kettles of boiling soup in feather beds, thus keeping the soup warm overnight.

The idea of a special box for conserving heat for cooking purposes seems to have originated in Norway, where hay was commonly used as an insulator. The Jewish beggar woman's basket lined with hay to keep warm the bits of food given to her was a close approach to this apparatus. The farmer who lines with hay the box in which he carries home ice from town makes use of the principle on which the fireless cooker is constructed. Many interesting applications of the principle could doubtless be brought to light by a definite search for them.

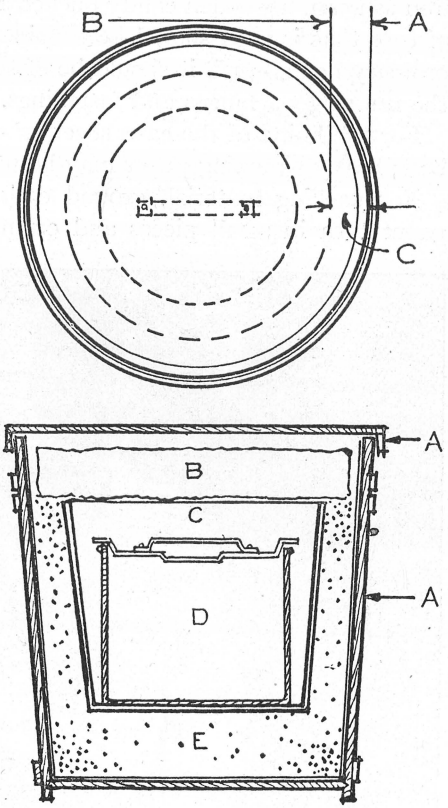


FIG. 26. DIAGRAM OF A HOMEMADE FIRELESS COOKER

Horizontal section: A, rim of outer bucket; B, rim of inner bucket; C, collar for keeping insulator in place.

Longitudinal section: A, outer bucket; B, cushion; C, inner bucket; D, food container; E, insulator

HOMEMADE FIRELESS COOKERS

Since the usefulness of the fireless cooker has become more generally recognized, many housewives have made their own cookers. The homemade fireless cooker is wholly satisfactory for cooking foods such as cereals, vegetables, dried fruits, custards, fowls, and certain cuts of meat.

There is practically no danger from fire from a homemade fireless cooker unless very hot radiators are used. Non-inflammable insulating material is a good precaution. A very hot radiator placed above the food is unsafe because it is too near the muslin of the cushion. While baking is impossible without the use of two radiators, there are sufficient other purposes for which the homemade cooker may be used, to warrant the trouble and the small cost of construction.

The cost of a homemade fireless cooker may range from about one dollar and a half to eight dollars or more, depending on the materials used. It is desirable to expend enough money to secure material that will be durable, sanitary, and effective in preventing the passage of heat. If several sizes of aluminum pails with clamps and covers are bought for food containers, the cost may equal that of a small commercial cooker.

Utensils and materials used for making a fireless cooker

Various kinds of utensils and materials may be used for making a fireless cooker, depending upon the supply on hand and the amount of money one wishes to spend.

For the case or cabinet, a wooden box, a trunk, an ice box, a galvanized-iron ash can, a wooden candy bucket, or the like may be used. Any kind of case that is used should be provided with a tight-fitting cover. If an ordinary box is used, it should be of sufficiently heavy material to permit the use of good hinges and fastenings.

For the lining of the case, sheet asbestos one-eighth of an inch thick, is best; heavy wrapping paper may be used.

For packing material, ground cork, sawdust, excelsior, mineral wool, paper torn in small pieces and crumpled, powdered asbestos, shavings,

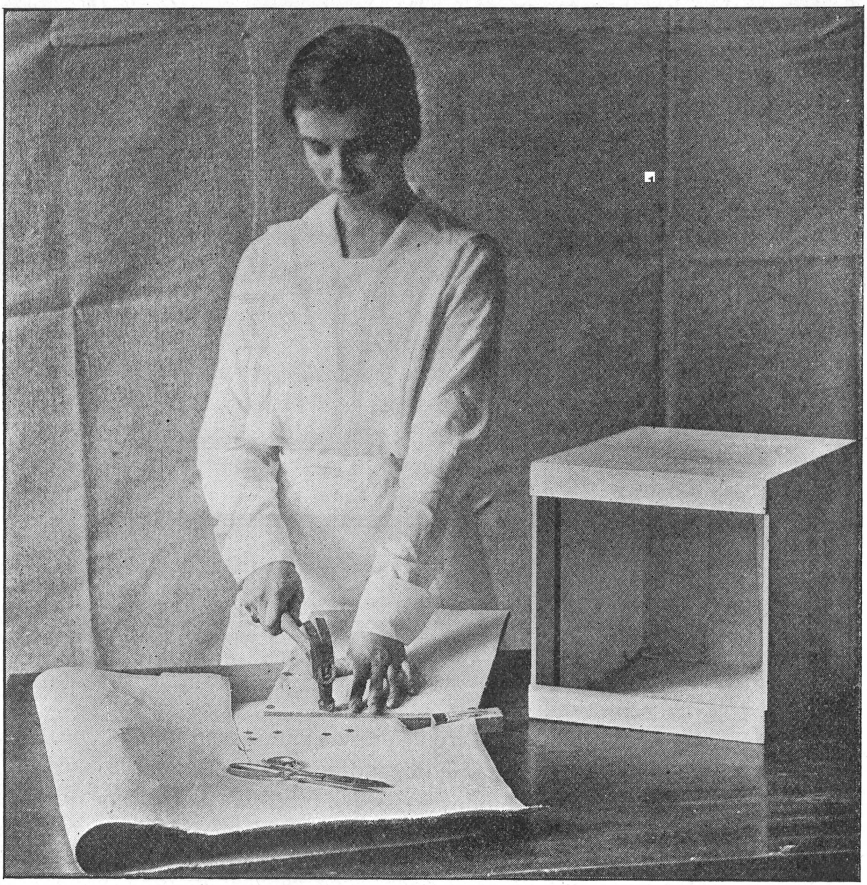


FIG. 27. LINING THE CASE WITH SHEET ASBESTOS

FIG. 28. PLACING THE PACKING MATERIAL AROUND THE FOOD COMPARTMENT

straw, hay, wool, and cotton batting have proved satisfactory. Mineral wool and powdered asbestos are both good non-conductors of heat, and they have the additional merit of being non-inflammable, but they are harder to work with than are the other materials; gloves should be worn by the person doing the packing, and care should be taken not to allow the material to enter the nose and mouth.

For the cooking compartment, a deep bucket or kettle of agate, galvanized iron, or tin, of such a size that there may be a space of at least three inches between the case and the top, the bottom, and the sides of the bucket, is convenient. This bucket or kettle should have a tight fitting, flat cover.

For the cooking utensil, a covered kettle or bucket of agate or aluminum, of a size suitable for the amount of food ordinarily to be cooked in it should be used. The utensil should be durable and free from crevices

FIG. 29. MAKING THE CARDBOARD COLLAR

and seams in which particles of food and harmful microorganisms may lodge, and it should be supplied with a tight-fitting cover that can be clamped down. Seamless aluminum is perhaps most commonly used for this purpose. Special fireless cooker utensils can be obtained generally from a local hardware dealer or from a firm that manufactures fireless cookers.

For the collar to cover the packing material, a piece of zinc, cardboard, sheet asbestos, or muslin, of such a shape as to fit the space between the case and the bucket that serves as the cooking compartment, may be used. Zinc is good for this purpose, because it does not tear with constant use as do the other materials; it can be washed; it does not rust; and it is non-inflammable.

For the cushion, heavy drilling, denim, or muslin is recommended.

For the plates (if desired), flat stones, stove lids, or special soapstone or metal radiators may be used. Most foods can be cooked without the use of hot plates or radiators, but a higher temperature can be reached and a cooking temperature can be prolonged by their use.

Directions for making a fireless cooker

The making of a fireless cooker will interest the children of the family. They may be allowed to help or, perhaps, to make the cooker themselves. Line the case and its cover with sheet asbestos of one-eighth of an inch thickness.

Pack into the botton of the asbestos-lined case a layer at least three inches deep of whatever packing material is used.

FIG 30. MAKING THE CUSHION

Place the bucket that is to form the cooking compartment on the layer of packing material in the bottom of the case. Pack the space between the case and the cooking compartment closely with more of this material, filling the space to within one-half inch from the top of the bucket.

Make and place a collar of any of the materials suggested, to cover the exposed surface of the packing material between the case and the cooking compartment.

Make a cushion of some of the materials suggested, which when filled with the packing material will be at least three inches thick, and will, as exactly as possible, fit into the space between the top of the cooking compartment and the top of the case. To make this cushion, cut from the material two pieces of the desired shape and size, and put them together with a straight strip of the desired width, with extra allowance for seams; fill the cushion with one of the materials suggested for this purpose.

POINTS TO BE CONSIDERED IN BUYING A FIRELESS COOKER

Many good types of fireless cookers are on the market. They may have advantages over certain types of homemade cookers in sanitation, insulation, provision for escape of steam, and in appearance.

Escape of heat

The more perfectly the cooker is insulated, the better are the results. There are certain trade mixtures of insulating materials, the secrets of which are not divulged. However, a reliable manufacturing company may be trusted to offer a good product.

Exterior of case

Attention should be paid to the durability of construction, and to the ease and thoroness with which the cooker may be cleaned. The outer case may be made of well-seasoned and well-finished hardwood, or of metal. Wood is better than metal as a non-conductor of heat, but metal is more easily cleaned.

Interior of lining

The material used for lining the interior should be durable and such that it may be cleaned easily and thoroly. Seamless aluminum, nickel-copper, and enamel are used for this purpose. The old models containing flannel-covered cushions were distinctly inferior to the present models that have nothing but metal exposed on the interior and are consequently non-absorbent and easily cleaned. In this respect the homemade cooker is often deficient.

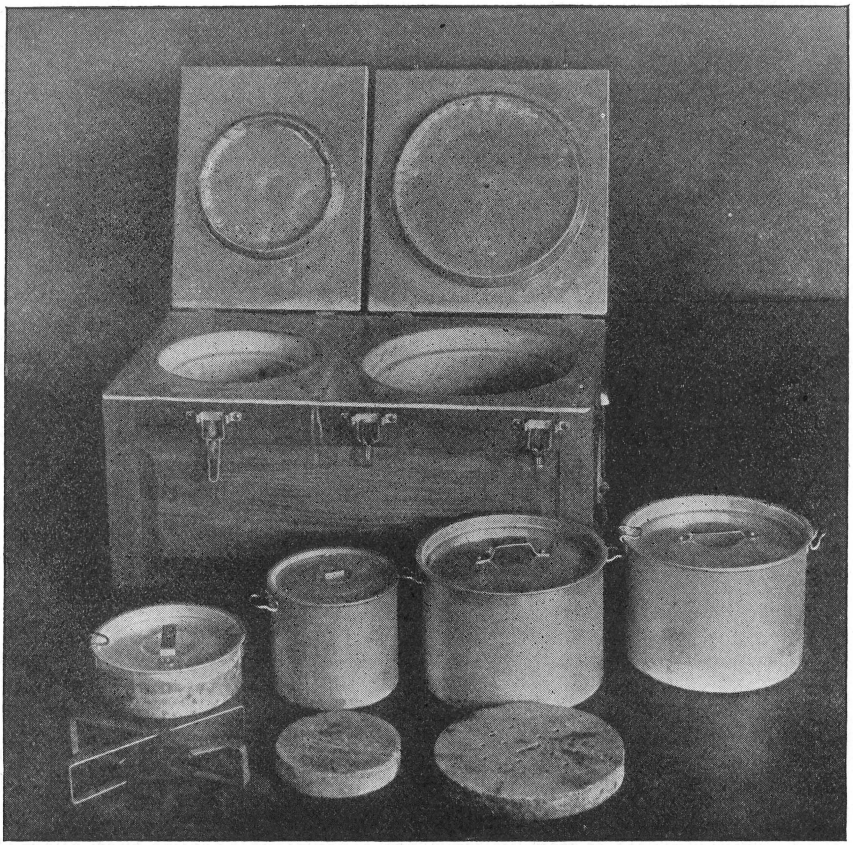


FIG. 31. A COMMERCIAL FIRELESS COOKER WITH UTENSILS

Cooking utensils

The utensils used for food containers should be durable and free from crevices and seams where particles of food and harmful microorganisms may lodge. Seamless aluminum is perhaps most commonly used for this purpose. Each utensil should be supplied with a tight-fitting cover that can be clamped down.

Vent valve

For baking or roasting, a vent valve or a similar device for the escape of steam, is desirable to produce the best results.

Hot plates

All fireless cookers are not equipped with hot plates, or radiators. For some cookery processes they are not necessary; but their use makes a

baking temperature possible, and also prolongs the time for which a lower cooking temperature can be maintained. The plates are commonly made of soapstone or steatite; iron is used occasionally. For baking there are various kinds of racks on which to rest the plates, usually one plate being placed below and one above the food to be baked.

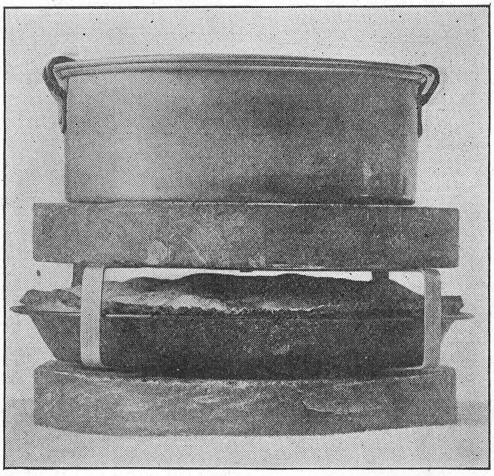


FIG. 32. USE OF RADIATORS
Radiators heated for baking may be used also for stewing

Locks and hinges

The locks, or clamps, and the hinges should be strong and well-fitted to insure absolute tightness. Some cookers are provided with stop hinges to prevent the lid from swinging back when it is opened.

Size

The quantity and the kind of food ordinarily to be cooked should determine the size of the cooker. In most cases a small amount of food in a large container does not hold the heat satisfactorily, but this difficulty may be overcome to a certain extent by using a small food container placed in a larger kettle and by filling the intervening space with boiling water. Cookers with food compartments of various sizes are convenient because they allow the cooking of such foods as ham and chicken, as well as a small quantity of vegetables, cereals, and the like.

Cost

The cost varies with the size, with the materials used in construction, and with the number of conveniences and appliances furnished; it ranges from about five dollars to sixty dollars or more. Some cookers are supplied with bases, which raise the cooker to a good working level, thus eliminating unnecessary expenditure of energy. Others that are so equipped utilize the space under the cooker for the storage of the cooking utensils and the radiators. There is also a cooker which is made as a part of a kitchen cabinet.

THE CARE OF A FIRELESS COOKER

Like all other pieces of equipment, a fireless cooker gives greatest satisfaction when properly cared for.

Prevention of odors

The interior of the fireless cooker should be kept absolutely clean. It should be washed, dried, and sunned, if possible, each time after being used. It should remain open several hours after use, and it should never be tightly closed when not in use. The observance of these precautions prevents the food from acquiring an unpleasant taste from odors or remnants of food previously cooked.

Equipment

For convenience, all equipment to be used in connection with the cooker, such as hot plates, hooks, racks, and cooking utensils, should be kept near the cooker. A shelf, cupboard, or an improvised cabinet made from a box may serve as a convenient storage place.

Radiators

The soapstone radiators, when not in use, may be kept warm on the back of the stove or in the sun, in order to reduce the length of time required to bring them to the desired temperature when they are needed.

Where to keep the cooker

The cooker itself should be placed near the stove, both to prevent unnecessary loss of heat in transferring the food from the stove to the cooker and to save labor on the part of the worker.

USE OF A FIRELESS COOKER

The fireless cooker is admirably suited to foods that require long cooking in order to be made more palatable and to be more easily digested.

Correct proportions in recipes

Care should be given to correct proportions in recipes, because there is no opportunity for the evaporation of excess moisture in the cooker. Moist foods require from one-sixth to one-quarter less moisture if prepared in the fireless cooker than if cooked on a stove.

Cereals

Cereal products, such as rolled oats, cracked wheat, and hominy, give excellent results when cooked in a sufficient quantity of water in a fireless cooker. The first rapid cooking on the stove bursts the starch granules; the long-continued, slow cooking in the fireless cooker softens the fiber

and completes the cooking of the starch, thereby making the nutritive matter available for use by the body.

Meats

The tough, and consequently cheap, cuts of meat are equally as nutritious as the more tender and more expensive cuts, but they require long cooking at a low temperature in order to be made more palatable. Intense heat shrinks and hardens the meat fiber. The extraction of meat juices for soup, which necessitates long cooking at a low temperature, is well accomplished in the fireless cooker. If it is desired to retain the juices in the meat, the outside of the meat should be seared for a few minutes at a high temperature; the meat should then be cooked in the fireless cooker at a temperature somewhat below the boiling point of water until it becomes tender. Meat should be thoroly heated to the very center before being transferred to the cooker. Fowls are especially good when cooked in the fireless cooker.

Steamed breads and puddings

Steamed breads and puddings are well adapted to the fireless-cooker method, because of the saving of time and fuel, and because they do not require watching.

Canning fruits

The use of the fireless cooker for canning certain fruits (page 86) is recommended by some persons. Vegetables can not be canned in the fireless cooker. The juices of fruits may be satisfactorily extracted for jellymaking in the fireless cooker; various conditions, however, determine the impracticability of its use for this purpose.

Keeping water warm

The fireless cooker is of use as a means of enabling one to keep warm water at hand when the range is not in use, or if there is no boiler connected with the range.

Saving ice

If more ice is purchased than will fit in the ice box, the extra quantity may be kept for some time in the fireless cooker.

Use of radiator in fireless cooking

In the preparation of the dishes for which recipes are given on pages 70–86, a radiator has been used in the fireless cooker. The more thoro cooking and occasionally the better flavor thus produced seem to justify the use of the small amount of fuel required to heat the radiator. Foods

prepared on a radiator do not need reheating even after as long a period as eight hours in the cooker.

A word of caution

Great care should be taken not to use an overheated radiator in a homemade fireless cooker unless a non-inflammable insulating material, such as mineral wool or powdered asbestos, is used.

Heat test

The radiator is heated only sufficiently to cause a drop of water to sizzle when dropped on it. Another test for a properly heated radiator is that white paper placed upon it will brown to straw color in five minutes.

INSULATED OVENS

The insulated oven, or automatic cook stove, has the advantages over the ordinary fireless cooker of being still more economical in regard to heat and labor and of saving an additional piece of equipment in the kitchen. In the insulated oven both the preliminary heating of the food and the complete cooking process are accomplished; consequently, both the loss of heat occasioned by transferring the food container from the stove to the cooker and the labor of this motion are eliminated. Moreover, the walls of the oven itself are heated and do not draw the heat from the food. Insulated ovens adapted to the use of gas, electricity, and kerosene, are now on the market. These devices are worthy of investigation by one who is buying new kitchen equipment.

Insulating the home oven

The ovens of most gas and oil stoves are made of thin sheet metal which readily conducts the heat from the inside of the oven to the outer surface where it is carried away from the oven by currents of air. This results in much loss of heat from the oven when it is in use, often making a satisfactory baking temperature difficult to secure and maintain.

It is possible to control this loss of heat to some degree by covering the top, sides, and door, of the oven with five-ply sheets of asbestos paper. These may be bound to the oven with fine wire or held on by a cement adapted to the purpose. An even better method is to use single-ply asbestos paper and place a layer of loose-mesh wire netting over this, adding asbestos plaster as a final covering. In this case care should be taken to have none of the metal wire exposed, in order that loss of heat by radiation may be prevented. Altho this covering gives better results, assistance from a local hardware department may be required to put it in place.

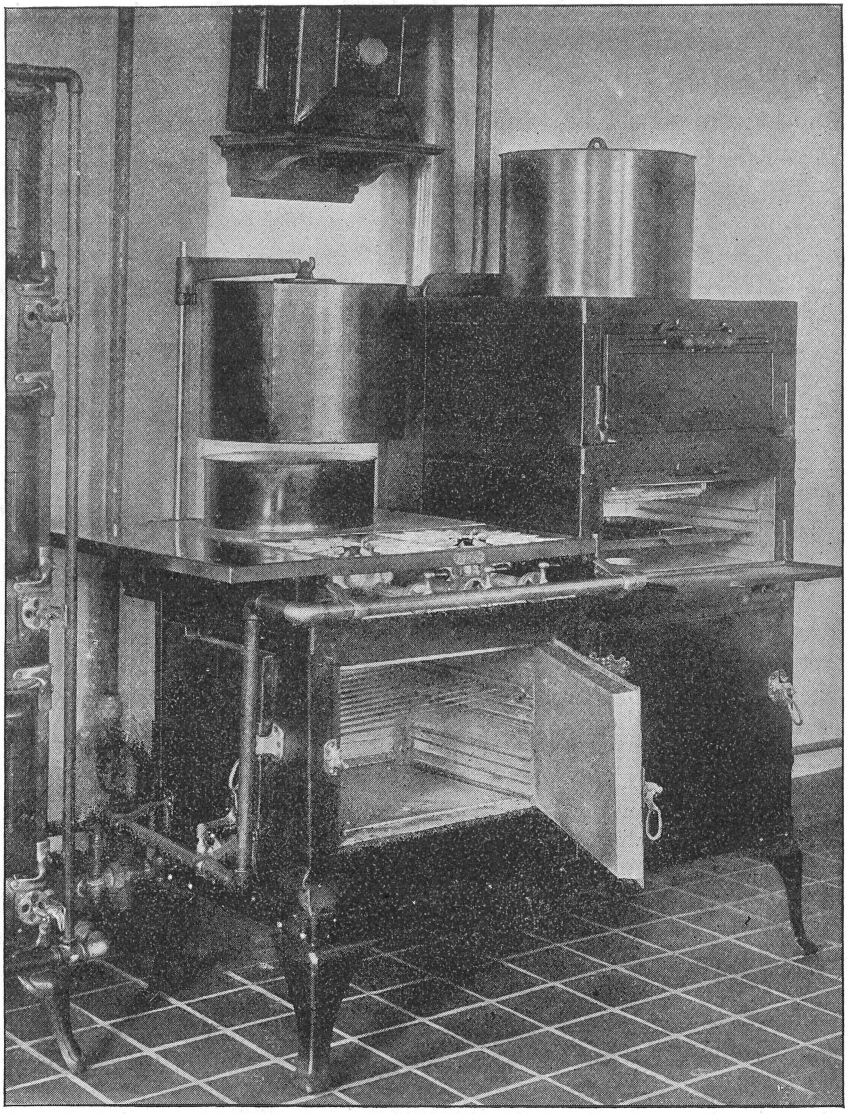


FIG. 33. AN INSULATED OVEN

This has an advantage over the ordinary fireless cooker in being still more economical of heat and labor

By insulating an ordinary gas oven it may be possible to reduce the consumption of gas as much as five cubic feet an hour from the amount required to maintain the same baking temperature without insulation. This would affect a considerable saving of fuel in a year.

THE STEAM-PRESSURE COOKER

Another cooking device for saving fuel and time, and one of more recent application to home use than the fireless cooker, is the steam-pressure cooker.

PRINCIPLE OF THE STEAM-PRESSURE COOKER

The principle upon which the construction of the steam-pressure cooker is based resembles that of the regulation steam boiler. Steam is generated from water in the bottom of the cooker. This steam is confined within the walls of the cooker and produces pressure in amounts varying with the degree of confinement. Steam under pressure has a higher temperature than boiling water. This temperature increases as the pressure increases. Ten pounds of pressure gives to steam under proper conditions a temperature of 240°F. Water boils at 212°F. The value of the steam-pressure cooker lies in the high temperature thus made possible, which shortens the time required for the cooking of food products and for the killing of organisms in canning food.

Pressure cookers are made of a high grade of metal and are put together by riveting, soldering, and molding in such a way that steam can not escape thru joints or seams. Packing is placed around the groove of the outer rim of the cover, which is held on with clamps, and the cooker is thus made steam tight.

A brass petcock is screwed into the cover of the cooker which provides for the escape of air and for the free circulation and regulation of steam in the cooker.

A dial gauge is provided in the cover. The needle of this gauge moves as the pressure changes in the cooker so that the number of pounds of pressure is always shown on the gauge. A safety valve is attached, which can be so adjusted by means of weights, that the pressure inside the cooker can be automatically regulated.

ADVANTAGES OF THE STEAM-PRESSURE COOKER

The many advantages of the steam-pressure cooker are rapidly bringing it into home kitchens. As a piece of household equipment it has a double advantage in that it may be used for successful canning of meats and vegetables, as well as for cooking purposes.

Thoro cooking

The combination of high temperature and moist heat attained by the steam-pressure cooker is probably more effective than any other method of cooking for making certain foods digestible and tender. Cereals with

their large proportion of cellulose, and meats with tough fiber are among such foods.

Economy of time

The fact that the cooking of foods in the steam-pressure cooker may be completed in a very short period of time has advantages for the housekeeper who has to meet emergencies in hasty preparation of meals.

Cereals may be deliciously cooked in 20 minutes in the steam pressure cooker as compared with 3 hours of cooking on the stove. Beans may be well cooked in 30 minutes instead of requiring 5 or 6 hours of cooking on the stove.

A steamed pudding placed in the steam pressure cooker is ready to serve after being cooked for 30 minutes under 10 pounds of pressure. Three hours would be required to accomplish this in any other way.

Even beef neck or flank, which would require from 3 to 5 hours of cooking on the stove, may be cooked in 40 minutes in the steam-pressure cooker.

Economy of fuel

In most steam-pressure cookers only a short period of time is required to attain ten pounds of pressure. A low fire will maintain the pressure thruout the cooking process. It is estimated that on one medium-sized burner of an average gas stove every hour of cooking represents an average consumption of about seven cubic feet of gas. Since the cooking period is much shortened because of the high temperature made possible by the steam-pressure cooker, a considerable saving of fuel is accomplished by its use.

POINTS TO BE CONSIDERED IN BUYING A STEAM-PRESSURE COOKER

The following points should be considered in buying a steam-pressure cooker:

Construction

The construction of the cooker should be such that it may be kept steam tight during a long period of use. The petcock and safety valve should be durable and easy to operate.

Material

It is important that the material of which a steam-pressure cooker is made will conduct heat quickly in order that fuel may not be wasted in bringing the pressure to the required point. A material that is kept clean easily and that will not rust is most satisfactory. Probably the most suitable material for a steam-pressure cooker is aluminum. Certain foods may, if desired, be placed directly in the aluminum cooker without other containers, provided the cooker is kept thoroly clean.

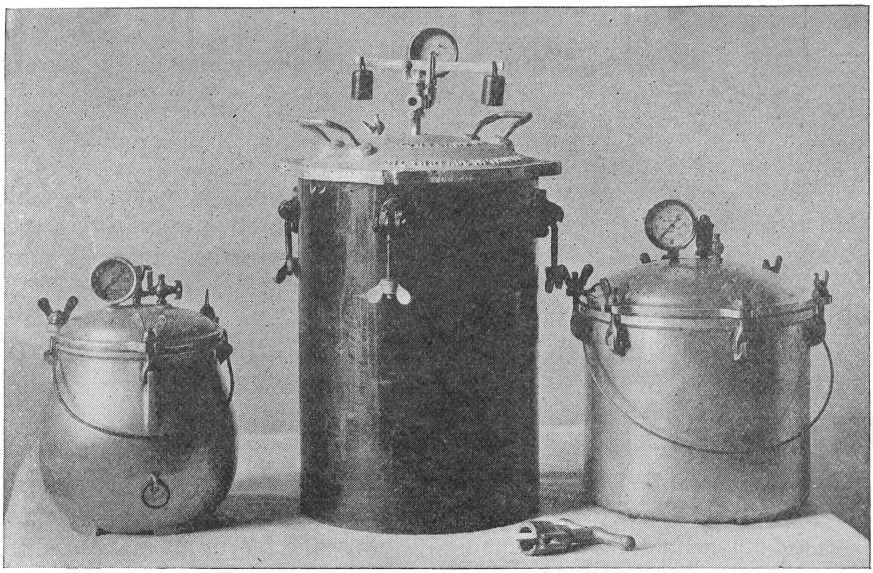


FIG. 34. THREE TYPES OF STEAM-PRESSURE COOKERS

Size and weight

A cooker that is suitable in size for both the necessary cooking and canning should be selected. It should be so shaped that it may be cleaned easily and that it will hold the type of cooking and canning vessels which are to be used in connection with it. The weight of a cooker should be considered if a woman is to lift it.

USE OF A STEAM-PRESSURE COOKER

The following directions should be observed in using the steam pressure cooker:

Height of water

Never allow the water in the cooker to come above the rack on which the food is placed.

Petcock

Leave the petcock on the cooker open until the steam has forced out dead air and excess moisture. The petcock should be closed while cooking the food.

When the period of cooking is finished, remove the cooker from the stove, allow the pressure indicator to run down to zero and to remain there a few minutes before opening the petcock.

Pressure

Bring the pressure up to the desired amount slowly and hold it at this point steadily during the entire cooking.

Opening the cooker

When the cooking is finished, and the pressure indicator has stood at zero for a few minutes, open the petcock very gradually, allowing the steam to escape gently with no force. When no further steam escapes from the petcock, release the clamps and remove the food.

RECIPES AND DIRECTIONS FOR COOKING IN FIRELESS AND STEAM-PRESSURE COOKERS

LUCILE BREWER

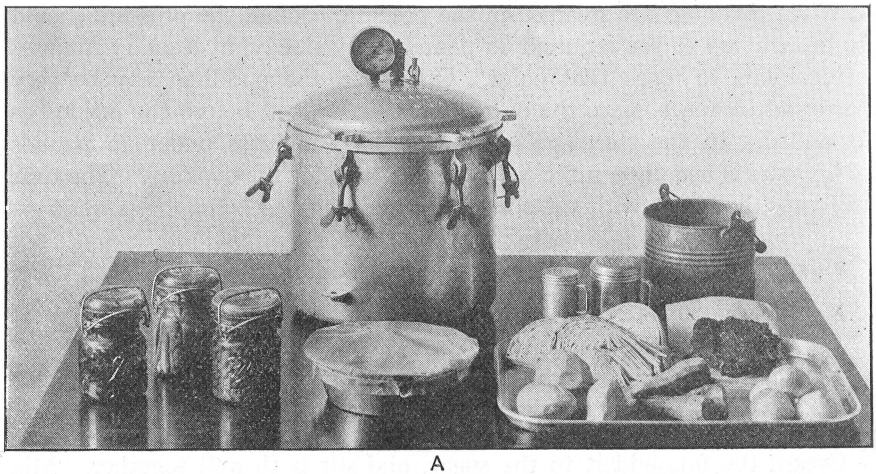
In the preparation of steamed breads and puddings, cereals, fruits, vegetables, and tough cuts of meat, the fireless or steam-pressure cooker is especially helpful. The woman who owns and learns to make use of this equipment will have little difficulty in adapting her own recipes to the fireless- or pressure-cooker method of preparation. The few recipes given in this bulletin are intended to be suggestive of the possibilities of fireless and pressure cooking and to give the general method to be used in the preparation of several types of food by these methods.

STEAMED BREADS AND PUDDINGS

Steamed breads and puddings are among the most satisfactory foods which may be cooked in the fireless or the steam-pressure cooker. As there is little loss of moisture in the ordinary method of steaming, recipes for steamed foods do not require change for use in the fireless or steam-pressure cooker.

Steamed breads or puddings which are cooked either in the fireless or steam-pressure cooker should be placed in molds large enough to allow ample room for expansion. The molds in which they are to be steamed should never be more than two-thirds full. Molds of the variety known as " Turk's head " with a tube thru the center, are best for steaming, because the passage of steam thru the tube insures the thoro cooking of the center of the product. The mold should be tightly covered. If no other cover is available, oiled paper securely tied over the top of the pan may be made to answer the purpose.

The texture of steamed puddings and bread is not quite as light and fluffy when cooked in the fireless cooker as when cooked in the steam-pressure cooker or ordinary steamer. However, the fireless-cooker method gives very satisfactory results.



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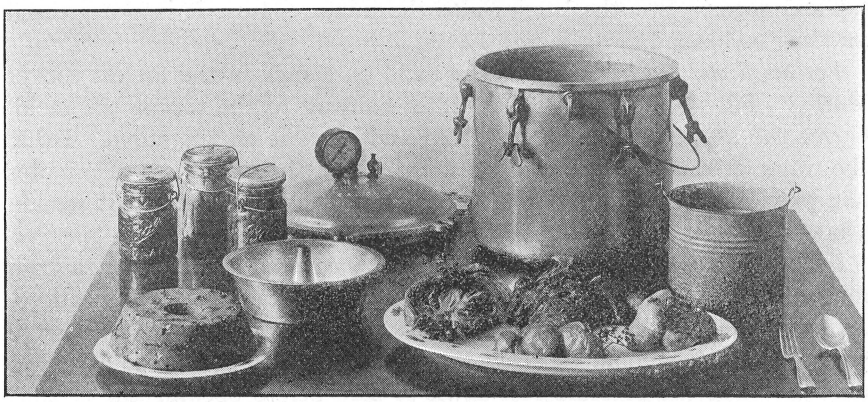

B

FIG. 35. THE STEAM-PRESSURE COOKER DOES DOUBLE DUTY

(A) A whole meal and three cans of vegetables ready to be processed; (B) After forty minutes in the pressure cooker, an old-fashioned dinner of meat, vegetables, and potatoes, with a steamed pudding for dessert, is ready for the table. The cans of vegetables found room in the bottom of the cooker with the pail which held the dinner, and were processed while the meal was cooking

For the fireless cooker.— In the fireless cooker, the pudding mold should rest on a rack of such height that the hot water in the container will come at least two-thirds of the distance to the top of the mold. In general, steamed dishes require a preliminary steaming over boiling water of 10 minutes, and 3 hours additional cooking in the fireless cooker.

For the steam-pressure cooker.— In the steam pressure cooker, the mold should be placed on a rack sufficiently high to prevent the water in the bottom of the cooker from boiling over the top of the pudding.

When puddings are steamed in the pressure cooker, the pressure should be brought up to the required 10 pounds very slowly, at least 15 minutes being taken to reach that point. Otherwise, the pudding may be very hard and compact, since the outer surface is cooked before the inside has expanded. In the steam-pressure cooker, 30 minutes under 10 pounds of pressure is usually a sufficient period of time for the cooking. The time will vary, however, with the size of the pudding.

Steamed cranberry pudding

3 tablespoons fat
½ cup sugar
1⅓ cups flour
4 teaspoons baking powder
⅔ cup of sour milk
⅔ cup cranberries
½ teaspoon soda
½ teaspoon salt

Cream the fat, add it to the sugar, and stir both well together. Mix and sift the dry ingredients; add them alternately with the milk to the fat and sugar. Stir the berries into the mixture, turn it into a greased pudding mold, and cover it tightly.

For the fireless cooker.— Place the mold on a rack in the fireless cooker kettle. Fill the kettle with hot water halfway to the top of the mold. Cover the kettle containing the mold and place it on the stove. Bring the water gradually to the boiling point. Boil the water for 10 minutes and place the kettle on a hot radiator in the fireless cooker; let it remain 3 hours.

For the steam-pressure cooker.— Place the covered pudding on a high rack in the steam-pressure cooker, in which the hot water is two inches deep. Adjust the clamps, place the cooker on the stove, and bring the pressure very slowly to 10 pounds. Hold the pressure steady at this point for 30 minutes. Let the pressure run down to zero before opening the cooker. Allow the steam to escape gradually.

Serving.— Serve the pudding with thin cream sweetened and flavored, or with boiled custard or pudding sauce.

Pudding sauce

½ cup sugar
1 tablespoon cornstarch
1 cup boiling water
1 teaspoon butter
Vanilla

Mix the sugar and cornstarch. Add the boiling water, stirring constantly. Place the mixture in a double boiler, and cook it until it is thick and smooth. Remove it from the fire, and add the butter and vanilla to taste. Serve the sauce at once.

Soft custard

1 cup milk
1 egg yolk
1 tablespoon sugar
Salt

Scald the milk. Add the sugar and the salt and pour the mixture over the beaten egg yolk. Cook the custard in a double boiler over very low heat, stirring it constantly until it coats a spoon. Remove the custard at once from the heat, pour it into a bowl and serve it cold.

Tapioca and apple pudding

⅔ cup pearl tapioca
1 quart water
6 medium-sized apples
¾ cup sugar
¼ teaspoon salt
1 tablespoon butter
1 teaspoon grated lemon rind

Soak the tapioca in the water for one hour. Pare the apples, cut them in quarters, and place them in the bottom of a greased baking dish. Pour the soaked tapioca, which has been mixed with the other ingredients, over the apples.

For the fireless cooker.— Place the baking dish in hot water on a rack in the cooker kettle and bring it to the boiling point. Transfer the kettle to a hot radiator in the fireless cooker, and let it remain one hour.

Graham pudding

¼ cup fat or " cracklings "
½ cup molasses
½ cup sour milk
1 cup graham flour
½ cup cornmeal
3 teaspoons baking powder
½ teaspoon soda
1 teaspoon salt
⅔ cup raisins or other fruit
1 teaspoon cinnamon
½ teaspoon each, mace, cloves, allspice, ginger

Cream the fat, add it to the sugar, and stir both well together. Mix and sift the dry ingredients; add them alternately with the milk to the fat and sugar. Turn the mixture into a greased pudding mold and cover it tightly.

For the fireless cooker.— Place the mold on a rack in the fireless cooker kettle. Fill the kettle with hot water halfway to the top of the mold. Cover the kettle containing the mold and place it on the stove. Bring the water gradually to the boiling point. Boil the water for 10 minutes, and place the kettle on a hot radiator in the fireless cooker; let it remain for three hours.

For the steam-pressure cooker.— Place the covered pudding on a high rack in the steam-pressure cooker, in which the hot water is two inches deep.

Adjust the clamps, place the cooker on the stove, and bring the pressure very slowly to 10 pounds. Hold the pressure steady at this point for 30 minutes. Let the pressure run down to zero before opening the cooker. Allow the steam to escape gradually.

Steamed corn bread

1 cup sour milk
¼ cup molasses
1¾ cups cornmeal
⅓ cup flour
½ teaspoon soda
4 teaspoons baking powder
½ teaspoon salt
3 tablespoons fat

Mix and sift the dry ingredients. Add them to the milk, molasses, and melted fat. Stir the ingredients well together, and turn the mixture into a greased pan.

For the fireless cooker.— Place the mold on a rack in the fireless cooker kettle. Fill the kettle with hot water halfway to the top of the mold. Cover the kettle containing the mold, and place it on the stove. Bring the water gradually to the boiling point. Boil the water for 10 minutes, and place the kettle on a hot radiator in the fireless cooker; let it remain for 4 hours.

For the steam-pressure cooker.— Place the covered pudding on a high rack in the steam-pressure cooker in which the hot water is at least two inches deep. Adjust the clamps, place the cooker on the stove, and bring the pressure very slowly to 10 pounds. Hold the pressure steady at this point for 30 minutes. Let the pressure run down to zero before opening the cooker. Allow the steam to escape gradually.

CEREALS

Cereal products, such as rolled oats, cracked wheat, hominy, and rice give excellent results when cooked in either the fireless or the steam-pressure cooker. The preliminary boiling on the stove in preparation for the fireless cooker tends to burst the starch granules, and the long, slow cooking softens the fiber of the cereal and completes the cooking of the starch, giving a rich, nutty flavor to the cereal as well as increasing its digestibility.

The steam-pressure cooker accomplishes these results even more effectively. The proportion of water to cereal should be lessened about one-fourth when the cereal is to be prepared in either the steam-pressure or the fireless cooker, since there is little or no loss of water by evaporation in cooking.

Cereals cooked overnight may need a slight reheating before being served in the morning.

Cornmeal mush

1 cup cornmeal
4 cups water
Salt

Sift the cornmeal into the boiling, salted water, stirring it constantly.

For the fireless cooker.— Boil the mush for 5 minutes. Place it in the fireless cooker on a hot radiator for 6 hours or overnight.

For the steam-pressure cooker.— Add the cornmeal to the boiling salted water, and place it in the pressure cooker without further heating. Cook it for 30 minutes under 10 pounds of pressure.

Cracked wheat

1 cup cracked wheat
6 cups water
Salt

Soak the wheat overnight in the water.

For the fireless cooker.— Boil the wheat in the water for 5 minutes on the stove. Place it in the fireless cooker on a heated radiator for 8 hours or overnight.

For the steam-pressure cooker.— Cook it under 10 pounds of pressure for 40 minutes.

Hominy grits

1 cup hominy grits
4 cups water
Salt

For the fireless cooker.— Boil the hominy in the water for 5 minutes on the stove. Place it in the fireless cooker on a hot radiator for 3 hours or overnight.

For the steam-pressure cooker.— Cook it under 10 pounds of pressure for 20 minutes.

Rolled oats

1 cup rolled oats
2 cups water
Salt

For the fireless cooker.— Boil the oats in the water for 5 minutes on the stove. Place the cereal in the fireless cooker on a hot radiator for 3 hours or overnight.

For the steam-pressure cooker.— Cook it under 10 pounds of pressure for 20 minutes.

Rice

1 cup rice
3 cups boiling water
Salt

For the fireless cooker.— Add the rice to the boiling, salted water and boil it for 5 minutes. Place it in the fireless cooker on a heated radiator. At the end of 2 hours the rice will be hot enough to serve and to melt grated cheese if it is desired to add cheese to the rice.

For the steam-pressure cooker.— Rice is fluffy and has a fine flavor when cooked under 10 pounds of pressure for 20 minutes in the same proportion of water as in the fireless cooker.

Rice mold

$\frac{1}{3}$ cup rice
$1\frac{1}{3}$ cups milk
Salt

For the fireless cooker.— Wash the rice thoroly; add it to the hot milk. Keep it well stirred until the mixture boils. Take the kettle from the stove, place it in the fireless cooker on a hot radiator for from 2 to 3 hours. Remove the rice from the cooker, shape it into small molds, and serve it with a spoonful of honey on top of each mold, or with soft custard or stewed dried fruit.

BAKING IN THE FIRELESS COOKER

Baking in the fireless cooker is not to be generally advocated. At least 10 minutes is required for heating each of the two radiators used for baking, and when the baking process is to be a short one there is probably little saving of fuel by the fireless-cooker method. When the baking process requires an hour or longer, there is doubtless a considerable saving of fuel in using the fireless cooker. This saving is even greater when the large amount of heat lost by radiation from most baking ovens is considered.

There are occasions when, aside from the fuel-saving question, the fireless cooker may be recommended for certain types of baking because it does not require constant watching and gives freedom for other work while the baking is going on.

Certain foods, however, including those which should have a dry, crisp, or mealy texture, are not adapted to baking in a fireless cooker because of the condensation of steam.

Radiators that have been used for one or two hours for baking are still sufficiently hot to be used for cooking dried fruits or cereals, which should be ready to place on them as soon as the baked food is removed.

Pumpkin pie

1 cup pumpkin
4 tablespoons sugar
1 tablespoon molasses
1 teaspoon butter
Salt
1 teaspoon cinnamon
¼ teaspoon each, cloves, allspice, nutmeg
1 egg
1 cup milk

Mix the pumpkin with the sugar and molasses. Add the well-beaten egg, the melted butter, and the milk. Line a pie plate with plain pastry, bringing the edge of the crust well over the edge of the pan. Turn the pumpkin mixture into the crust. Bake the pie for one hour on a rack between two heated radiators in the fireless cooker.

Apple pie

6 tart apples
1 tablespoon flour
½ cup sugar
Butter
Flavoring

Line a pie plate with plain pastry. Mix the flour and a part of the sugar together, and spread the mixture thinly over the bottom of the crust. Fill the plate with thinly sliced apples, rounding the apples slightly in the center of the plate. Add the remaining sugar, a few bits of butter, and any flavoring desired to the apples. Moisten the edges of the crust and place the top crust or strips of pastry over the pie. Press the edges well together. Place the pie on a rack between two heated radiators in the fireless cooker for one hour. The pie is nicely browned on top and bottom at the end of this time and the filling is well cooked.

Sponge cake

3 eggs
½ cup flour
½ cup sugar
1 teaspoon baking powder
¼ teaspoon salt
¼ cup water
Flavoring

Mix the sugar and water and boil the mixture until it threads. Pour the sirup over the well-beaten egg whites; beat the mixture until cool and to this add the egg yolks beaten until light. Sift the flour, baking-powder, and salt together. Gradually fold the sifted dry ingredients into the egg mixture. Turn the mixture into a cake tin, which has been greased and lined with paper, and bake the cake on a rack between two radiators in the fireless cooker for one hour. Turn the cake from the pan, and remove the paper. Tear the cake apart with a fork when ready to serve it.

Brown bread

1 cup graham flour
½ cup bread flour
½ cup cornmeal
½ cup molasses
1¼ cups sour milk
⅓ cup fat (any kind)
½ teaspoon soda
3 teaspoons baking powder
1 teaspoon salt
¼ cup raisins

Sift the cry ingredients together. Add the molasses, fat, and the sour milk. Beat the mixture well. Place one half the batter in a greased bread pan; scatter the raisins over the batter and cover them with the remainder of the batter. Bake in the fireless cooker for 1½ hours between heated radiators.

FRUITS AND VEGETABLES

The fireless cooker is an excellent means of cooking dried fruits and vegetables which are best when cooked slowly for a long time at a temperature below the boiling point. All such fruits and vegetables require a preliminary soaking as for ordinary cooking.

The canning of certain fruits in the fireless cooker, and of both fruits and vegetables by use of the pressure canner, is discussed on page 86.

Stewed apples

For the fireless cooker.— Pare and quarter tart apples and remove their cores. Boil them for 3 minutes in a thin sirup made in the proportion of 4 tablespoons of sugar to 1 cup of water. Place the apples in the fireless cooker on a heated radiator for 1½ hours.

Apples thus cooked keep their shape well, have a good flavor, and are somewhat pink in color from the long, slow cooking.

Rhubarb Sauce

For the fireless cooker.— Wash the rhubarb and cut it in pieces about one inch long, without peeling. Place alternate layers of fruit and sugar in the kettle. Use no water. Place the kettle on the stove over low heat and bring the rhubarb slowly to the boiling point. Remove the kettle from the stove and place it in the fireless cooker for 2½ hours on a heated radiator.

Rhubarb cooked in this manner has a rich red color and an excellent flavor. The amount of sugar to be added depends on the desired richness of the sauce.

Stewed prunes

For the fireless cooker.— Wash the prunes and soak them overnight in three times their quantity of cold water. Boil them for 5 minutes, without

the addition of sugar or other sweetening, in the water in which they were soaked. Place them in the fireless cooker for about four hours without a radiator, or for 2 hours with a radiator.

Dried fruits of all kinds may be cooked overnight in the fireless cooker.

Dried apricot and apple sauce

1 cup apricots
2 cups cut apples
4 tablespoons sugar
Water

For the fireless cooker.— Soak the apricots overnight in enough water to cover them. Peel, core, and cut in eighths a sufficient number of tart apples to make 2 cups after cutting. Add the cut apples to the apricots with sufficient water to half cover the fruit. Bring the fruit slowly to the boiling point on the stove. Place it in the fireless cooker on a hot radiator for 3 hours. This sauce has an excellent color and texture.

Apple, quince, and cranberry butter

2 cups apple pulp
1 cup quince pulp
1 cup cranberry pulp
2½ cups sugar

For the fireless cooker.— Mix all the ingredients together, and heat the mixture slowly to the boiling point. Put it in the fireless cooker on a hot radiator for 3 hours.

Fruit butter made in this manner has an excellent color, and the flavor and consistency are good.

Apple, quince and cranberry conserve

2 cups apple pulp
1 cup quince pulp
1 cup cranberry pulp
2½ cups sugar
1 cup raisins

For the fireless cooker.— Boil the fruit mixture and sugar for 5 minutes. Add the raisins. Bring the mixture again to the boiling point and place it in the fireless cooker on a hot radiator for 2½ hours.

Quinces

Cut the quinces in small pieces. Add to them sufficient water to cover the fruit.

For the fireless cooker.— Boil the mixture for 5 minutes; place it on a hot radiator in the fireless cooker for 5 hours.

For the steam-pressure cooker.— Place the quinces in the steam-pressure cooker without heating, and cook them for 35 minutes under 10 pounds of pressure.

The juice from the cooked quinces may be drained off and used with apples for jelly in the proportion of two parts of apple juice to one part of quince juice. The pulp may be used for conserve or butter.

Quince and apple sauce

1 pound fruit — quince and sweet apple
1⅔ cups sugar
Water

For the fireless cooker.— Use quinces that have been cooked previously until tender. Pare sweet apples and cut them in fairly thick slices. Cook the apples in a small amount of water until tender. Drain off the juice, add the sugar to this, and boil the mixture for 5 minutes. Add the fruit, bring it to the boiling point, and place it in the fireless cooker on a hot radiator for 3 hours. This makes an excellent rich sauce but not sufficiently concentrated for preserves.

Candied citron

1 pound citron
1¼ cups sugar
½ cup water

For the fireless cooker.— Boil the sugar and water for 5 minutes. Add the citron cut in rather thin slices. Bring the mixture to the boiling point, and place it in the fireless cooker on a hot radiator for 4 hours. Remove the citron from the cooker, and boil it for 10 minutes to reduce the sirup. Drain the slices of citron on a plate to save the sirup, and place them on a cheesecloth over a rack in a warm place. Dry them until the pieces are not sticky (about twenty-four hours). The citron is clear and perfectly tender.

Candied pumpkin may be made in the same way and is of a rich golden color with a very pleasing taste.

Pumpkin for pies

For the steam-pressure cooker.— Cut the pumpkin in small pieces. Place it in the container with no water. Cook it in the steam-pressure cooker under 10 pounds of pressure for 30 minutes. Rub it thru a sieve and cook it slowly on the stove for one hour to drive off the excess moisture.

Apple jelly

Apples prepared for jelly in the fireless cooker yield three-fourths more juice than the same quantity of apples with the same proportion of water

prepared in the ordinary kettle on the stove. The juice extracted in the fireless cooker, besides being greater in quantity, is better in color and gives a test for pectin as good as that given by juice extracted in the kettle on the stove. Therefore the juice does not have to be concentrated before it is made into jelly, and a larger quantity of jelly results. Any apples that will make good jelly may be prepared in the following manner.

For the fireless cooker.— Wash the apples. Remove the blossom ends and any spoiled or discolored portions. Cut the apples in quarters and add water enough to cover. Bring the apples to the boiling point on the stove and place them in the fireless cooker for 2 hours on a hot radiator. Remove the mixture and strain it thru a jelly bag.

Apple butter

1 $\frac{1}{3}$ cups apple pulp
$\frac{3}{4}$ cup sugar

For the fireless cooker.—Add the sugar to the apple pulp left from extracting the juice for jelly, and boil the mixture for 5 minutes. Place it on a hot radiator in the fireless cooker for 2 hours.

MEATS, LEGUMES, AND SOUPS

Steam-pressure and fireless cookers are perhaps most useful and efficient in the cooking of meats, legumes, and soups.

The nutriment stored up in the tough, and consequently cheap, cuts of meat, in soup bones, and in beans and other legumes, is not so commonly made use of as it might be, because of the length of time required for cooking. The fireless cooker overcomes this difficulty with long, slow cooking. The steam-pressure cooker accomplishes in 30 or 50 minutes results that can be obtained only with 4 or 5 hours of cooking on the stove.

Macaroni Italienne

1 cup macaroni
1 cup stewed tomato
1 $\frac{1}{2}$ cups stock or water
1 medium-sized onion, sliced
1 small bay leaf
1 tablespoon salt
Paprika
2 tablespoons green pepper, minced
$\frac{1}{2}$ cup grated cheese

For the fireless cooker.—Break the macaroni into one-inch pieces. Place in a food container and pour the liquid (stock or water) over it. Boil the mixture for 5 minutes. Add all the other ingredients except the cheese, and bring them to the boiling point. Place them in the fireless

cooker on a hot radiator for 1½ hours. Remove the bay leaf and add the grated cheese. The mixture should be hot enough to melt the cheese and ready to serve without further heating as soon as the cheese is melted.

For the steam-pressure cooker.— Cook the entire mixture except the cheese under 10 pounds of pressure for 20 minutes. Remove it from the cooker and add the cheese. The macaroni is more thoroly cooked than in the fireless cooker or on the stove.

Vegetable chowder

½ cup salt pork, cut in small pieces and browned, or 4 tablespoons drippings
1 cup potatoes, diced
2 tablespoons cornstarch
¼ cup cold water
2 cups hot milk
1 tablespoon butter
1 cup carrots, diced
1 cup turnips, diced
1 medium-sized onion, sliced
Boiling water
Salt and paprika
Celery salt
Minced green pepper
Parsley or celery leaves, if desired

For the fireless cooker.— Brown the vegetables in the hot fat. Add sufficient boiling water to cover the mixture and boil for 5 minutes. Place the vegetable mixture in the fireless cooker on a hot radiator and allow it to remain in the cooker for 2 hours. Remove the vegetables from the cooker, add the cornstarch cooked in the milk, and the butter and seasonings.

For the steam-pressure cooker.— Brown the vegetables in the fat. Add the boiling water, place the mixture in the steam-pressure cooker under 15 pounds of pressure for 15 minutes. Add the cornstarch cooked in the milk, and the butter and seasonings.

Chowder cooked in the fireless cooker has a slightly stronger flavor than when prepared on the stove, but the color and texture of the vegetables are good.

Boiled dinner

1 pound beef, cut in small pieces
½ medium-sized cabbage
6 small potatoes
6 small carrots
6 small onions
Salt, paprika

For the fireless cooker.— Cut the meat in small pieces, add enough water to cover; season, and boil the mixture for 5 minutes. Place it in the fireless cooker on a hot radiator for 2 hours. Remove the meat from the cooker, add the vegetables to it and more water if necessary. Boil the mixture for 5 minutes and place it on a reheated radiator in the fireless cooker for 2 hours.

For the steam-pressure cooker.— Place the meat, vegetables, and seasonings in the food container. Add enough boiling water to cover the vegetables. Place the mixture in the cooker for 30 minutes under 10 pounds of pressure.

For either method of preparation the vegetables should be of as nearly the same size as possible in order to secure uniformity in cooking.

Only young, tender cabbage should be cooked in this way, as mature cabbage prepared either by the long, slow cooking or under the high temperature is likely to cause digestive disturbances.

The meat may be left in one large piece, in which case it should be cooked in the fireless cooker overnight or under 10 pounds of pressure for 20 minutes before the vegetables are added. As this increases the amount of heat required, as well as the labor, it is advised that the meat be first cut in pieces suitable for serving. The flavor of the mixture is improved if the meat is first seared in a small amount of fat before being placed in the water.

Soup stock

3 pounds of beef knuckle
3 quarts of cold water
2 teaspoons salt

For the fireless cooker.— Wash the beef carefully, crack the bone, and place it in the container. Cover it with water. Bring the meat slowly to the boiling point, and boil it for 10 minutes. Place it in the fireless cooker for 6 hours or overnight.

For the steam-pressure cooker.— Place the meat in the steam-pressure cooker under 10 pounds of pressure for 40 minutes. A higher pressure, such as 15 pounds for 30 minutes, may be used, in which case the meat will fall from the bones, but the color and flavor of the stock is not so good. In either method, vegetables and other seasonings may be added if desired, as in other methods of making soup stock.

Lima bean casserole

1 medium-sized onion
½ tablespoon fat
½ cup uncooked meat, diced
2 cups lima beans
1 cup potatoes, diced
1 green pepper
1 cup tomato
Salt
Pepper
1 bay leaf
Celery leaves or parsley, minced
Water

Slice the onions and brown them in just enough fat to prevent burning. Add the meat, sear it, and add the other ingredients. Turn the mixture into a heated baking dish. Add sufficient boiling water to show thru

the mixture but not to cover it. This recipe is also excellent with soy beans which have been cooked previously under pressure.

For the fireless cooker.— Transfer the mixture to a heated radiator in the fireless cooker for 2 hours.

For the steam-pressure cooker.— Place the casserole in the steam-pressure cooker for 30 minutes under 10 pounds of pressure.

Boiled beef

3 pounds beef neck
Boiling water
Salt
Pepper
Flour
Fat

Dredge the meat with salt, pepper, and flour. Place it in the container with a small amount of drippings or other fat, and sear it on all sides. Add enough boiling water to partly cover it.

For the fireless cooker.— Bring the meat to the boiling point and boil it gently for 30 minutes. Place it on a hot radiator in the fireless cooker for 6 hours. Reheat it for 10 minutes before serving.

For the steam-pressure cooker.— Place the meat in the steam-pressure cooker and cook it under 10 pounds of pressure for one hour.

Flank roll

3 pounds beef flank
1 cup boiling water
Salt
Pepper
Flour
Fat

Roll the meat compactly and fasten it with skewers or tie it with string. Dredge it with flour, sear it well in a small amount of fat, and season it.

For the fireless cooker.— Bring the meat to the boiling point and boil it for 5 minutes. Place it in the fireless cooker on a heated radiator and allow it to remain for 4 hours. Reheat it and serve it with a gravy made from the drippings thickened with flour. Small carrots or onions may be added to the meat for flavor when it is put on to cook. The roll may be sliced and served cold.

Brown stew

3 pounds beef shank
4 tablespoons fat
2 tablespoons flour
1 small onion
1 quart boiling water
1 bay leaf
1 small celery stalk
½ green pepper
Salt
Pepper

Cut the meat into one-inch pieces and sear it well in hot fat. Add the flour and mix it with the fat to a smooth paste. Add the remaining ingredients.

For the fireless cooker.— Boil the mixture for 5 minutes. Place it on a heated radiator in the fireless cooker for 3 hours.

For the steam-pressure cooker.— Place the mixture in the steam-pressure cooker without the preliminary heating, and cook it under 10 pounds of pressure for 20 minutes.

Roast pork

2 pounds pork
Salt
Pepper
Flour

For the fireless cooker.— Wipe the pork well, sprinkle it with salt and pepper, and dredge it with flour. Sear the meat well on the stove. Transfer the pork to the fireless cooker between two hot radiators for 2 hours. The roast is hot enough on removing it from the cooker to be served at once.

Baked Beans

1 pint navy beans
½ quart cold water
1 teaspoon mustard
¼ pound salt pork
1 tablespoon minced onion
2 tablespoons molasses
¼ teaspoon paprika
Salt

Wash the beans and soak them overnight in the cold water. Cook them in the same water until the skins slip off easily. Add the remaining ingredients.

For the fireless cooker.— Transfer the beans to the fireless cooker between two heated radiators for 6 hours. The beans are well browned and tender.

For the steam-pressure cooker.— Baked beans are prepared by cooking them for 30 minutes under 10 pounds of pressure and then browning them in the oven for 20 minutes.

Beans and peas

Soy beans, split peas, and navy beans are excellent cooked in either the steam-pressure or the fireless cooker. They are prepared in the proportion of 1 cup beans to 4 cups water.

For the fireless cooker.— Soy beans require a preliminary boiling of 30 minutes; for the other legumes, 10 minutes is sufficient. They are then placed in the fireless cooker on a heated radiator for 3 hours.

For the steam-pressure cooker.— When cooked under pressure legumes are perfectly tender and well done at the end of 30 minutes under 10 pounds of pressure.

FROZEN DESSERTS

Frozen mixtures may be kept in the fireless cooker for several hours without melting; or a frozen mixture that does not require stirring may be surrounded with ice and salt and placed in the food compartment to

freeze. Proper insulation tends to prevent the passage of heat from either the inside or the outside of the cooker. A well-insulated cooker maintains at the same time a high temperature in one compartment and a low temperature in another.

Coffee mousse

¾ tablespoon gelatin
3 tablespoons cold water
½ cup strong coffee
½ cup sugar
1 pint thick cream

Soak the gelatin in the cold water, dissolve it in the hot coffee, and add the sugar. Chill the mixture, stirring it constantly until it thickens, then fold in the whipped cream. Put the mousse into a mold, cover it, and pack it in four parts of ice and one part of salt in the fireless cooker. Allow it to remain for 3 hours.

CANNING

The fireless cooker.— Only tender fruits with a high content of acid may be canned in the fireless cooker. This method should never be used for vegetables or tough, non-acid fruits. Raspberries, plums, and peaches may be canned successfully in the fireless cooker.

Prepare the fruit for canning, and pack it rather closely into clean jars which have been boiled for at least 15 minutes. Adjust the rubbers and completely fill the jars with sirup. Adjust the hot covers and seal the jars immediately. Place the jars in the fireless cooker kettle, which should be warmed previously to prevent the jars from breaking, and entirely cover them with boiling water. Cover the kettle at once, and set it away in the cooker overnight.

The steam-pressure cooker.— Canning in the steam-pressure cooker is particularly advised for meats and vegetables, since the higher temperature made possible by steam under pressure is more effective in destroying micro-organisms than is the temperature of boiling water. It is the method used in all commercial canning factories, where large steam retorts are installed for the purpose. Products canned by this method need only one short period of sterilization; this fact recommends the method for a saving of time and fuel as well as for a possible saving of the product.

The water in the canner should not come above the rack on which the jars are placed, since violent boiling in this case may cause breakage of the jars.

The pressure should be brought slowly to the desired point and held steadily during the canning period. Sudden changes in pressure cause loss of liquid in the jars.

Meats, vegetables, and fruits are prepared for canning in the steam-pressure cooker according to the directions for the cold-pack method which will be described in *Food Preservation*, Lesson 136, of the Cornell Reading Course for the Home.

Most vegetables are sterilized in the steam-pressure cooker for 40 minutes under 10 pounds of pressure.

Meats are sterilized in the steam-pressure cooker for 105 minutes under 10 pounds of pressure.

Fruits and tomatoes may be sterilized for 20 minutes under 5 pounds of pressure. However, except for very tough fruits, the high temperature is likely to overcook the product, and since the natural acid content makes the sterilization comparatively simple, the pressure cooker is not necessary. The cooker may be used as a steamer by leaving the clamps unfastened, and the fruits may be steamed in the cooker for the same length of time as in water-bath canning.

TIME-TABLE FOR USE WITH A FIRELESS COOKER

Food	Proportion of food to water	Minutes for boiling on the stove	Hours in the cooker
Cereals			
Cornmeal	1 to 6	10	6 or all night
Cracked wheat	1 to 5	25	8 or all night
Cream of wheat	1 to 6	5	2 or all night
Farina	1 to 7	5	2 or all night
Hominy grits	1 to 5	15	8 or all night
Macaroni	1 to 4	5	2
Rice	1 to 4	5	2
Rolled oats	1 to 3	5	3 or all night
Vegetables			
Beans, dried (soaked and cooked in the same water)	1 to 4	5	6 or more
Beans, string	1 to 1	2	2
Cabbage	1 to 1	2	1½
Carrots	1 to 1	2	2
Onions	1 to 1	2	2
Potatoes	1 to 1	2	2
Dried fruits			
Apples	1 to 2	5	4 or all night
Apricots	1 to 2	2	4 or all night
Peaches	1 to 2	2	4 or all night
Prunes (soaked and cooked in the same water)	1 to 2	5	4 or all night
Meats			
Beef, boiled	.....	15	3
Beef, pot roast	.....	30	5
Chicken, stewed	.....	30	3
Ham, boiled	.....	20	7
Mutton leg or shoulder, boiled	.....	20	6
Mutton stew	.....	10	4
Breads and puddings			
Brown bread	.....	30	5
Cup custard, steamed	.....	.....	1
Suet pudding	.....	30	5

MENUS ADAPTED TO THE USE OF THE FIRELESS AND STEAM-PRESSURE COOKERS

Those dishes marked with the asterisk (*) may be prepared in either the steam-pressure or the fireless cooker.

BREAKFASTS

I. *Stewed prunes
*Cornmeal mush
Cocoa
Toast

II. *Apple and apricot sauce
*Creamed chipped beef
Toast
Coffee

III. *Baked apples
*Cream of wheat
Milk
Cocoa
Toast

IV. *Apple sauce
*Hominy grits, cream
Muffins

LUNCHEONS

I. *Vegetable chowder
Bread and butter
*Graham pudding, hard sauce

II. *Baked beans
Lettuce salad
Bread and butter
*Cranberry tarts

III. *Cream of split-pea soup
Bread and butter
Banana and nut salad
*Boiled rice with fruit sauce

IV. *Macaroni Italienne
Bread and butter
Ginger bread
Canned peaches

DINNERS

I. *Spanish steak with potatoes and onions
Bread and butter
*Buttered carrots
*Cranberry pudding with thin cream

II. *Boiled dinner of meat and vegetables
*Steamed brown bread and butter
*Baked apple with cream

III. *Stuffed chicken (roasted 15 minutes in the oven after steaming)
*Mashed potatoes
*Creamed peas
Bread and butter
Vegetable gelatin salad
*Chocolate steamed pudding

IV. *Casserole of meat, potatoes, and vegetables
Bread and butter
Waldorf salad
*Pumpkin pie

Dinner menu III is especially adapted to the use of the steam-pressure cooker. After the chicken is removed from the cooker to the oven, the other foods may be placed in the cooker and will be ready to serve when the chicken is finished.

In a fireless cooker with a deep cooking compartment, certain foods may be cooked on top of the radiator, which is placed over other food that is being roasted.

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